MINAR International Journal of Applied Sciences and Technology
ISSN: 2717-8234
Article type: Research Article

Received: 25/05/2022 **Accepted:** 17/06/2022 **Published:** 01/09/2022

THE EXTENT OF ADHERENCE TO THE ROUTINE VACCINATION SCHEDULE FOR CHILDREN IN TIME OF CORONA PANDEMIC

Haider Y. ABDULRAZAQ[1]

Southern Technical University, Iraq

Farzdq Fakhir GATAE[2]

Southern Technical University, Iraq

Abstract

The vaccine is a biological preparation that provides active acquired immunity to a specific infectious disease. The practice of immunization goes back hundreds of years and is considered the founder of vaccination science Edward Jenner in the West in 1796. A 13-year-old boy was vaccinated with the cowpox vaccine and showed immunity to smallpox. Vaccines are manufactured from weak or dead forms of microbes, their toxins, or one of the surface proteins. The topic of this study dealt with knowing of the percentage of children who dropped out of routine vaccinations and the extent of commitment to taking routine vaccinations during the Corona epidemic, and finally the impact of not taking vaccinations on infection with diseases. The research process was carried out in Basra Governorate, in cooperation with the health centers. A questionnaire was made containing a set of questions about the child like (gender, age, arrangement of the child in the family...) for 200 samples which were collected during a period of time and the interview was directly with the mother and using the vaccine card to obtain all information about the missed vaccines. The study revealed that 70.5% of the participants dropped out of vaccines (21% of them have dropped out of all vaccinations, and 49.5% have dropped out of some of them) and it was found that the rate of adherence to routine vaccinations during the pandemic was 29.5%..

Keywords: Children Vaccination, COVIED-19, Immunization.

http://dx.doi.org/10.47832/2717-8234.12.15

[1] haider.younis@stu.edu.iq

[2] farazdaq.fakhir@stu.edu.iq

This article has been scanned by **iThenticat** No **plagiarism** detected

Introduction

The practice of immunization back for hundreds of years ago, like drank snake venom for having the immunity to snake bite, also in 17th century China experienced variolation (smearing of a skin tear with cowpox to acquired immunity to smallpox). In addition to Edward Jenner who considered as the initiator of vaccinology in the West in 1796, after he give a 13-year-old-boy a vaccine from (cowpox), and established immunity to smallpox in by 1798 (Lombard et al., 2007).

Vaccination is a process of administration of a vaccine to support the immune system for developing immunity against a specific disease. While Vaccines is a biological preparation that contain a live attenuated microorganism (like polio mellitus vaccine) or in killed state (pertussis vaccine) or proteins or toxins (like tetanus vaccine) from this organism for stimulating the human body's acquiring immunity and prevent illness from an infectious disease. When suitably a huge percentage of a population has been vaccinated this leads to herd immunity. Herd immunity prevents those who may be immunosuppressed and they did not get a vaccine for one reason or another (Frieden et al., 2011).

Vaccines mostly given by injectable way as they are not absorbed easily through the intestines. While some vaccines like live attenuated polio, rotavirus, some cholera, and some typhoid vaccines are administrated orally to establish immunity in the bowel. In spite of vaccination (active immunity) produce a long lasting effect, it typically needs several weeks to progress which differs from passive immunity (transferring of previously prepared antibodies) that has immediate effect (Delany et al., 2014).

A vaccine failure occurred when vaccine developing a disease in spite of being immunizing against it or when does not produce antibodies against the specified organism (Wiedermann et al., 2016).

There is no vaccine that is 100% effective and safe. side effects occur in a small number of them. The Centers for Disease Control and Prevention (CDC) has declared that the possible side effects differ from one vaccine to the another, but for childhood vaccine (mild fever, redness, soreness, swelling at the injection site, fatigue, poor appetite, vomiting) are the common side effects with rarely serious allergic reaction could be occurred (CDC, 1996).

In Iraq, the immunization schedule for children contents several vaccines like Oral poliomyelitis vaccine (OPV), Hepatitis B vaccine (Hep B), BCG vaccine, Pneumococcal conjugate vaccine (PVC13), Rota virus vaccine, Penta vaccine against (diphtheria, pertussis, whooping cough, hepatitis B, haemophilus influenzae type b) in addition to MMR (measles, mumps, rubella) and vitamin A as illustrated in (table 1)(MOH, 2019).

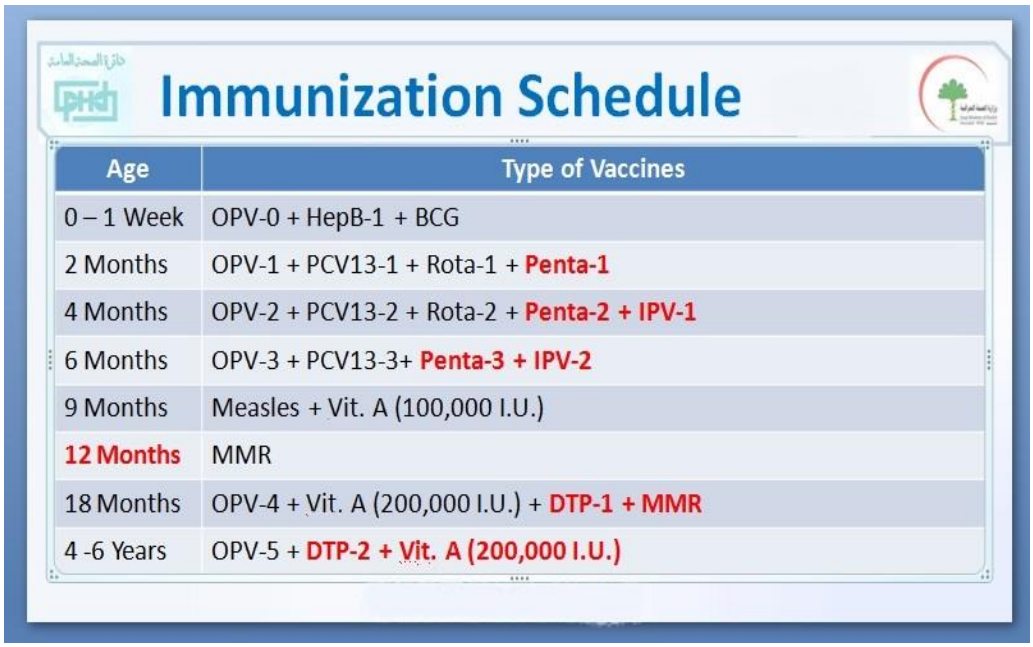
Immunization Schedule
Age
Type of Vaccines
0 – 1 Week
OPV-0 + HepB-1 + BCG
2 Months
OPV-1 + PCV13-1 + Rota-1 + Penta-1
4 Months
OPV-2 + PCV13-2 + Rota-2 + Penta-2 + IPV-1
6 Months
OPV-3 + PCV13-3+ Penta-3 + IPV-2
9 Months
Measles + Vit. A (100,000 I.U.)
12 Months
MMR
18 Months
OPV-4 + Vit. A (200,000 I.U.) + DTP-1 + MMR
4 -6 Years
OPV-5 + DTP-2 + Vit. A (200,000 I.U.)

Table 1: Immunization schedule for children in Iraq

But UNICEF and WHO alarmed about the health threats of children missing routine vaccination during the Covid-19 pandemic. As just less than half of children between 1-2 years old are completely immunized against preventable illnesses and only two-thirds are protected against measles. Which means that the most vulnerable children at a great risk of diseases outbreak (UNICEF, 2020).

Methodology:

It was a cross-sectional study conducted in AL-Basra Governorate by taking random samples (200 children) from various health centers during the period from November 2021 to June2022 depending on the information present in the official vaccination card of the child in addition to making interview with his mother.

The questionnaire includes a set of questions which has been obtained and analyzed by IBM SPSS 23 and Microsoft excel programs, this questions dealt with the following topics:

- The general information of the child in terms of age, gender and weight.
- Factors that can affect the child, in terms of the child's arrangement in family, place of child's birth, type of birth, and how to breastfeed.
- The educational level of the father and the mother and the social level of the family.
- Home visiting by the vaccination mobile teams.
- Missed vaccines, and child illnesses as a consequence.
- Vaccination of parents with the corona vaccine.

Results and discussion:

The study shows according to the age distribution (figure 1) that the majority (69%) of the children were about one to four years' old, and they were 57.5% male and 42.5% female as shown in (figure 2).

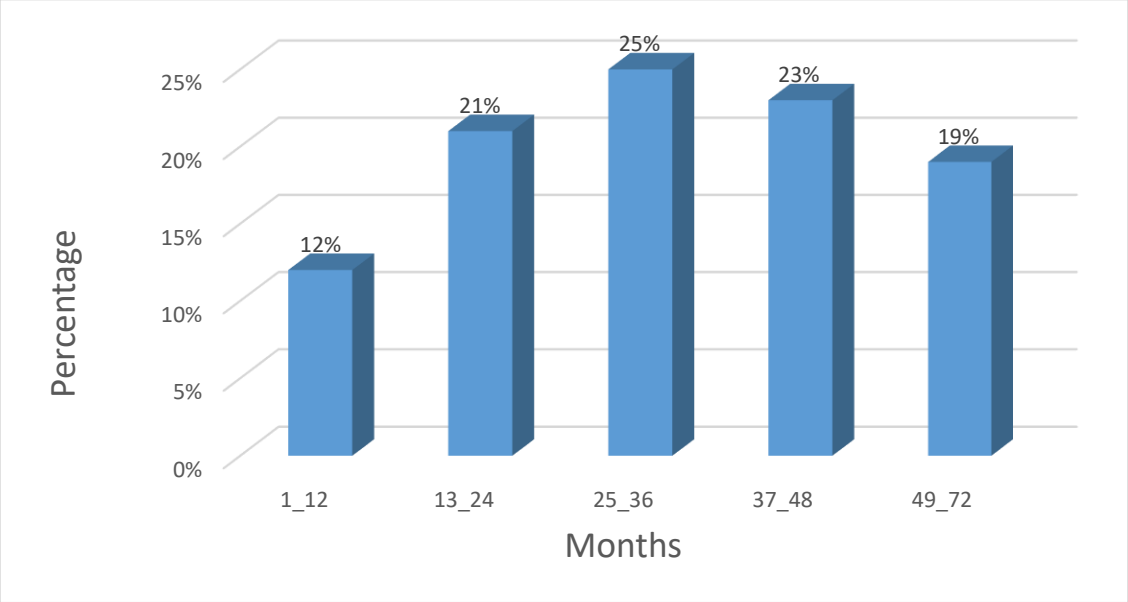

Figure 1: Age groups distribution

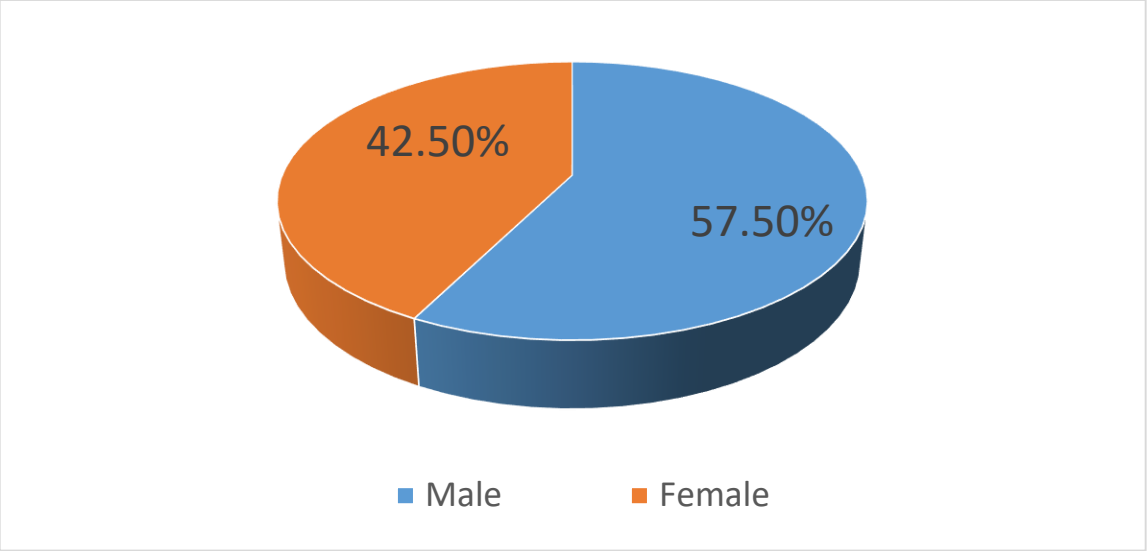

Figure 2: Gender of children

Also the study indicates that about 45% of the cases weighting from 8 to 13 kilograms (figure 3). While the order of the child among his brothers in (figure 4) gives the highest percentage to the second (22.5%) and the third (22%) child which may indicate that the multiplicity of children may contribute to the parents' lack of commitment to vaccinate their child.

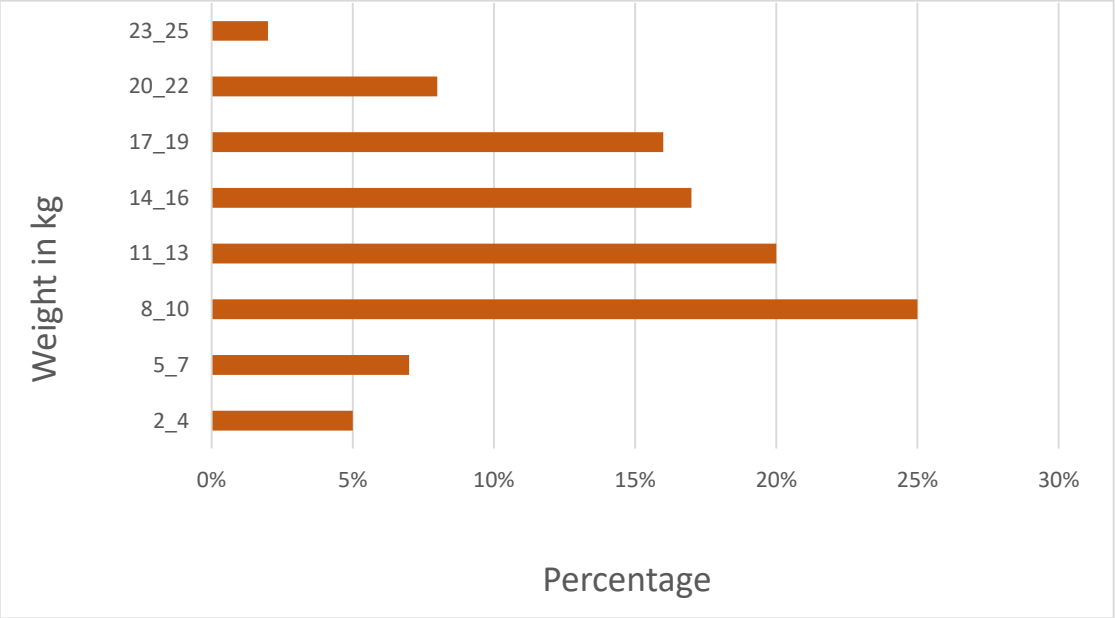

Figure 3: Weights of children

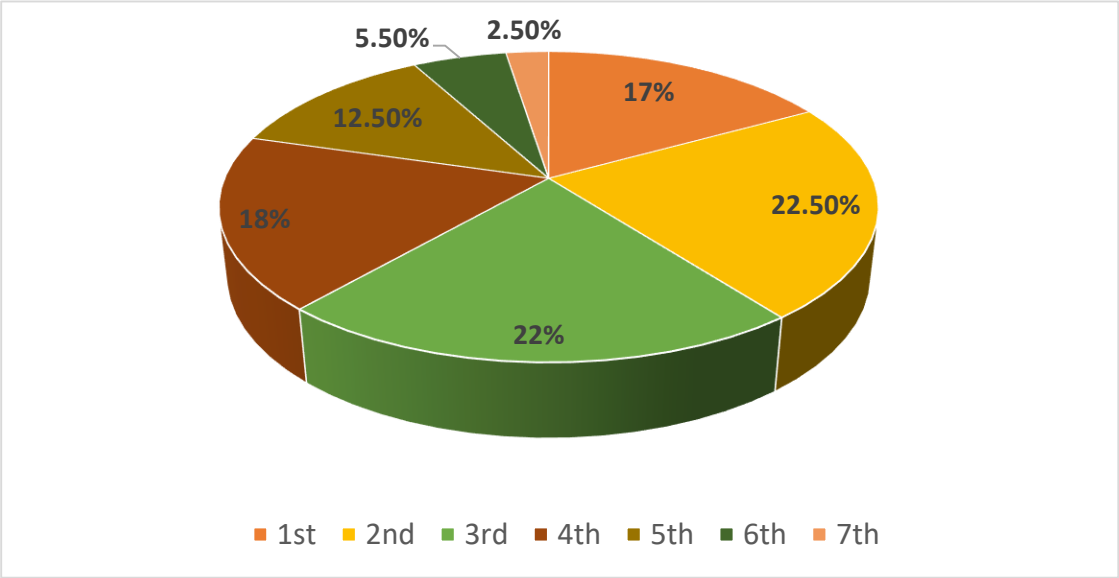

Figure 4: Order of the child

The study also clarified some of the factors that may affect the health of the child (table 2) and make him less or more susceptible to infection with some diseases in the event that he does not receive the vaccines designated against them. The study showed the presence of some positive aspects, such as hospital births (85.5%), natural childbirths (75.5%), and breastfeeding (62%) in addition to some negative aspects like 58% from the parents do not have a reliable income, just 17% of fathers and 12%of mothers reached to college.

Table 2: Factors that can affect a child's health.

Subject	Category	Number	percentage
Place of birth of the child	House	29	**14.5%**
	Hospital	171	**85.5 %**
Birth type	Natural	151	**75.5%**
	Cesarean	49	**24.5%**
Type of feeding	Breast feeding	124	**62.0%**
	Artificial	76	**38.0%**
Parents' social level	Not work	19	**9.5%**
	Unemployed	116	**58.0%**
	Employed	65	**32.5%**
Father's educational level	Illiterate	31	**15.5%**
	Primary	56	**28.0%**
	Middle school	97	**39.5%**
	College degree	34	**17.0%**
Mother's educational level	Illiterate	26	**13.0%**
	Primary	75	**37.5%**
	Middle school	75	**37.5%**
	College degree	24	**12.0%**

One of the most important ways to deal with children dropping out of the routine vaccination schedule is to send health vaccination teams to follow up and vaccinate them. The current study showed (Table 3) that only 52.5% of the participating cases were visited at home by these teams, and 49.5% of them were already vaccinated, while the remaining 3.5% did not receive vaccination, either because they did not mess any vaccines or because their families were not collaborating with these mobile teams. It also showed that 17% of children had already contracted diseases which they were not vaccinated against them.

As a measure of the extent of the impact of Corona and the vaccine used for it, to give parents the confidence to visit health centers for the purpose of vaccinating their children, they were asked about whether or not they received the Corona vaccine, and 60% of them answered yes.

Table 3: Vaccinations and mobile teams.

Subject	Category	Number	Percentage
Was the house visited by vaccination mobile teams?	Yes	105	**52.5%**
	No	95	**47.5%**
Was the child vaccinated by the mobile teams?	Yes	99	**49.5%**
	No	101	**50.5%**
Is the child infected with diseases that were not vaccinated?	Yes	34	**17.0%**
	No	166	**83.0%**
Are parents have been vaccinated with the corona vaccine?	Yes	120	**60.0%**
	No	80	**40.0%**

One of the most important results in the current study is that it was found (Table 4) that the percentage of children who received all the vaccinations that should be taken according to their age was 29.5%, while the percentage of those who failed to receive vaccinations was 70.5%, of whom 21% failed to receive most vaccinations and the rest (49.5) failed to receive just some of them.

As for the drooped out vaccines, the MMR vaccine -first dose came in first place (18%), while the vaccines OPV-first booster (10.5%) dose and Rota -first dose (8%) came in the second and third place, respectively. It is considered a close to the results of Ali Alhaddad whose study in AL-Nasiriya city/ Iraq showed that the lowest vaccination coverage rate was for the measles vaccine which in 2020 it reached 63.6% (Alhaddad et al., 2022).

Table 4: Missing Vaccines.

Subject	Category	Number	Percentage
The majority vaccines were missed		42	**21.0%**
The child meets all the vaccines		59	**29.5%**
The child missed just some vaccines		99	**49.5%**
Vaccines that the child did not receive	BCG	3	**1.5%**
	OPV-zero dose	1	**0.5%**
	Hep B-first dose	2	**1.0%**
	OPV-first dose	5	**2.5%**
	Rota -first dose	16	**8.0%**
	OPV-second dose	6	**3.0%**
	Rota -second dose	2	**1.0%**
	Penta V-first dose	3	**1.5%**
	OPV-third dose	2	**1.0%**
	Rota -third dose	2	**1.0%**
	PVC13 -second dose	4	**2.0%**
	Measles	18	**9.0%**
	MMR-first dose	36	**18.0%**
	OPV-first booster dose	21	**10.5%**
	Penta V-second dose	6	**3.0%**
	DTP-second booster dose	2	**1.0%**
	PVC13 -first dose	4	**2.0%**
	PVC13 -third dose	2	**1.0%**
	Vitamin A 100,000 unit	1	**0.5%**
	Vitamin A 200,000 unit	2	**1.0%**
	MMR-second dose	3	**1.5%**

Conclusion:

The study concluded that there is a clear lack of commitment by the parents to vaccinate their children with the routine vaccines assigned to them, especially during the period of the Corona pandemic, as the periods of ban and the parents' fear of being infected with the virus have exacerbated this problem.

Recommendations:

1- Educate parents about the importance of adhering to the routine vaccination schedule and warn them of the danger of neglecting it to the health of their children.
2- Health institutions should follow up on dropouts of vaccines and send mobile teams constantly for vaccinating them.

References:

Alhaddad, A., Ahmadnezhad, E., & Fotouhi, A. (2022). The vaccination coverage rate in under-five children in Nasiriyah (Iraq) before and during the COVID-19 pandemic. *Epidemiology and Health*, e2022035.

CDC, A. Z. (1996). Update: vaccine side effects, adverse reactions, contraindications, and precautions. Recommendations of the Advisory Committee on Immunization Practices (ACIP). *MMWR Recomm Rep*, *45*(RR–12), 1–35.

Delany, I., Rappuoli, R., & De Gregorio, E. (2014). Vaccines for the 21st century. *EMBO Molecular Medicine*, *6*(6), 708–720.

Frieden, T. R., Khabbaz, R. F., Redd, S. C., Bell, B. P., Fenton, K., Schuchat, A., & Cock, K. M. De. (2011). A CDC framework for preventing infectious diseases-Sustaining the essentials and innovating for the future. *Centers for Disease Control and Prevention. Atlanta*.

Lombard, M., Pastoret, P.-P., & Moulin, A. M. (2007). A brief history of vaccines and vaccination. *Revue Scientifique et Technique-Office International Des Epizooties*, *26*(1), 29–48.

MOH, I. M. of H. (2019). *Expanded Program of Immunization in Iraq - Annual Report*.

UNICEF. (2020). *WHO sound the alarm on the health dangers of children in Iraq missing routine immunization during the Covid-19 pandemic; 26 April 2020*.

Wiedermann, U., Garner-Spitzer, E., & Wagner, A. (2016). Primary vaccine failure to routine vaccines: Why and what to do? *Human Vaccines & Immunotherapeutics*, *12*(1), 239–243.